Increasing Lamb Survival – Breeding for Cold-Tolerance

For some years Lincoln has been working with gene marker technology to identify genes that are associated with desirable or undesirable traits in sheep. Footrot resistance is one, scrapie is another. By taking a blood sample and having it analysed for the presence of particular forms of a gene (alleles), scientists are able to predict the degree of tolerance or resistance that a particular animal will have, and be likely to pass on to its progeny.

Rachael Forrest linked particular alleles of this gene to the ability of newborn lambs to survive cold weather. Her research has led to a gene-marker test that enables sheep breeders to identify animals that will produce lambs that are more likely to die from cold exposure.

The Cold Tolerance Survival Gene Marker could identify sheep with vigour and those with the ability to thrive from birth. Lambs are ranked on three scores – A, B & C. The idea is to avoid breeding from animals scoring C, rather than forcefully breeding towards sheep scoring A & B.

A Sheep with a score of C is four times more likely to die from cold at birth than one scoring A. The test is linked to brown fat mobilisation at birth, as lambs who mobilise brown fat quicker are faster to get up and suck and thus have increased survival rates.